

ONE MODULE, DIFFERENT LEVELS OF MERGE: AN(N) COMPOUNDS IN DUTCH*

Marijke De Belder & Marjo van Koppen

Abstract. In this article we provide empirical evidence against the claim that morphology contrasts with syntax in dealing with items that are listed in the lexicon. (Jackendoff 1975, Aronoff 1976, Jensen and Stong-Jensen 1984). More specifically, we distinguish between three types of ANN compounds in Dutch. We show that the structural properties of these types do not show a one-to-one mapping with lexical properties, such as having a listed or even idiomatic meaning (see DiSciullo & Williams 1987). On the basis of this, we argue that conclusions on the structure of certain morphologically complex word-forms should be based on structural properties and not on lexical properties such as idiomaticity or being lexicalized. We propose a syntactic derivation for all types of ANN compounds in Dutch (*pace* Ackema and Neeleman 2004). Structural differences follow from the level of merge: what we traditionally call morphology is syntax below the functional domain.

1. Introduction

In this article we distinguish between three types of AN(N) compounds in Dutch, which we will refer to as lexicalized compounds, lexicalized phrases and productive compounds. Examples are given in (1)–(3).

(1) lexicalized compounds

- | | |
|------------------------------|------------------------|
| a. hoog-bouw(-architectuur) | b. vol-bloed(-paard) |
| high-building(-architecture) | full-blood(-horse) |
| ‘high rise (architecture)’ | ‘thoroughbred (horse)’ |

(2) lexicalized phrases

- | | |
|--------------------------|--------------------------|
| a. rode-kool(-recept) | b. hoge-school(-student) |
| red-cabbage(-recipe) | high-school(-student) |
| ‘recipe for red cabbage’ | ‘college student’ |

(3) productive ANN compounds

- | | |
|-----------------------------|--------------------------------|
| a. kale-katten-adoptie | b. gezonde-groenten-verkoper |
| hairless-cat-adoption | healthy-vegetables-seller |
| ‘adoption of hairless cats’ | ‘seller of healthy vegetables’ |

*We would like to thank the audiences of the Brussels Conference on Generative Linguistics (BCGL) 2012, Taalkunde-in-Nederland (TIN-)dag 2013, two anonymous reviewers of *Studia Linguistica*, Ad Neeleman and Jan Don for their invaluable input on previous versions of this paper. The research of Marijke de Belder has been made available by FWO. The research of Marjo van Koppen has been made available by NWO grant number 276-89-002.

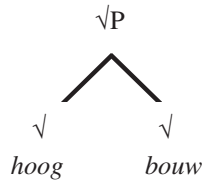
The first two types contain listed or lexicalized material. To be precise, the non-head [AN]-phrase is lexicalized. The third type, on the other hand, is fully transparent and productive in the sense that their creation can remain unnoticed by the native speaker and there is an unbounded possibility to form such compounds (cf. Lieber 1992:3, Schultink 1961 and van Marle 1985:4).^{1,2}

Given that word-formation has been associated with being listed (DiSciullo & Williams 1987 *i.a.*), one expects that the productive third type differs dramatically from the other two types that have listed readings. However, it will become clear that this expectation is not borne out. The first type differs considerably from the second type, even though they are both listed. Structurally, the second type is equal to the third type, i.e. the productive compounds. The property of being lexicalized thus crosscuts structural characteristics. We will therefore argue against an association between listedness and structural properties. We will further propose that all three types are derived in syntax by the operation Merge (*pace* Ackema and Neeleman 2004, section 4). However, the level of Merge may differ, giving rise to structural distinctions. More specifically, we claim that lexicalized compounds are derived via root merger, i.e. merger below category-specific functional projections, as in (4)a. The non-head of the first type is thus a compound consisting of roots that may be embedded in yet another compound, hence the third member is optional. Lexicalized phrases and productive compounds are derived from a partial NP, as in (4)b and (4)c. The non-head of the second and third type is a phrase that may be embedded in a compound, deriving an ANN compound. We will conclude that type 2 and type 3 are structurally similar, as is shown in and (4)b and (4)c. The only difference between the two types is the status in listedness of the left-hand part.

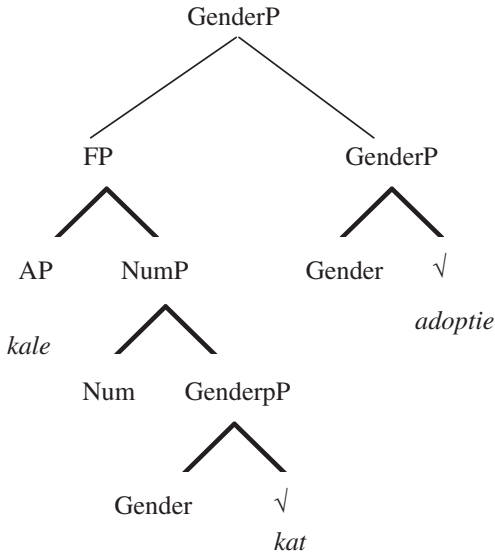
¹ See Hoeksema (1988), De Haas and Trommelen (1993), Booij (2002) and Ackema & Neeleman (2004) for earlier discussions of these data suggesting that [[AN]N] compounds may or may not include a phrase and pointing at the lexicalized nature of some of the data. Ackema & Neeleman (2004) also distinguish between type 1 and 2/3, but they do not distinguish type 2 from type 3. We will come back to Ackema & Neeleman (2004) discussion of these compounds in section 4 below.

² [ANN] compounds are not the only type of compounds in Dutch with a phrasal left-hand part. There are other compounds that might be of the same type, such as CardNN-compounds (e.g. *zeven-mijls-laars* ‘seven-league boot’ (Lit. seven-mile-boot)). Structurally, they may be highly parallel to the ones under discussion in the present article, yet, they are not the focus of this paper. There are further compounds with a quotative left-hand part, such as *blijf-van-mijn-lijf-huis* ‘women’s shelter’ (Lit. stay-of-my-body-house). These compounds probably differ substantially from the ones discussed in the paper (see Harley 2009 for discussion).

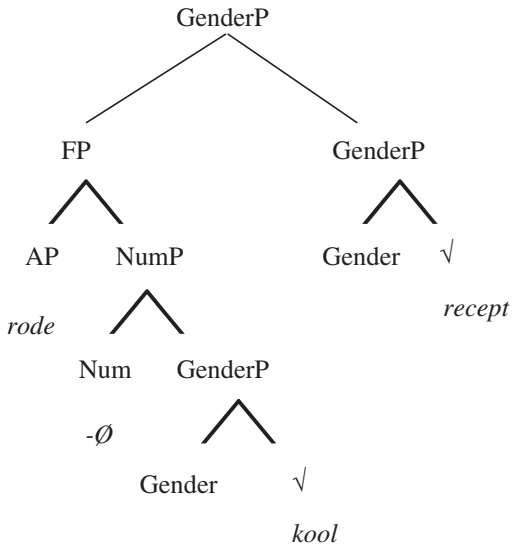
(4) a.



b.



c.



In sum, we will derive structural distinctions from the level of merge. Furthermore, we argue that the level of merge is independent of the

property of being lexicalized. Although the first two types contain lexicalized material, only the first type involves root merger. Structural distinctions thus crosscut lexical ones.

To be entirely clear, in the remainder of this paper we will assume the following definition of being lexicalized:

(5) Definition of lexicalized compounds or phrases

Lexicalized compounds or phrases are compounds and phrases that are recognized by the linguistic community as a fixed combination.

As a consequence, they can most typically be found in a dictionary.

Note that our definition of being lexicalized does not necessarily involve idiomaticity. Although lexicalized compounds or phrases may be idiomatic, this is not necessarily the case. For example, the compound in (6)a is lexicalized. It is attested in standard dictionaries of Dutch, such as *Woordenboek der Nederlandsche Taal* or *Van Dale*, which indicates that it is recognized as a listed word by the speech community. It is indeed a fixed combination, the adjective *hoog* ‘high’ cannot be replaced by another adjective, as is shown in the *b*- and *c*-examples, even though this is possible in a DP, as in (7).

- (6) a. hoog-conjunctuur
 high-economic climate
 ‘boom’
 b. *goed-conjunctuur
 good-economic.climate
 c. *sterk-conjunctuur
 strong-economic.climate

- (7) een hoge / sterke / goede conjunctuur
 a high / strong / good economic.climate
 ‘a high/strong/good economic climate’

Despite the fact that this compound is lexicalized, it is fully transparent.³ There is thus no reason to equate being lexicalized with idiomaticity. Note that idiomaticity of course implies being lexicalized. If an idiosyncratic meaning is associated with a fixed combination, the combination is necessarily the product of listedness. Idiomaticity is thus a stronger notion than being lexicalized. Keep in mind that in this article our claims are not about idiomaticity, but about the weaker notion of being lexicalized.

³ The meaning is transparent in the sense that there is a clear relation between the meanings of the compound’s parts and its meaning as a whole. We do not intend to claim that its actual meaning is the only one which could have been assigned transparently to the compound. As a reviewer points out, it could as well have been the case that *hoogconjunctuur* were listed with a different meaning which is equally transparent, such as ‘economic climate at times when the tide is high’.

We will proceed as follows. In the following section we introduce the three types of AN(N) compounding in Dutch. We present five characteristics to distinguish between these types. In section 3 we provide an analysis for each type. Section 4 contains a discussion on a previous, contrasting proposal from Ackema and Neeleman 2004. Section 5 sums up and concludes.

2. Three subtypes of AN(N) compounds in Dutch

2.1. Introduction

In this section we will present five tests to distinguish between the three types of AN(N) compounds in Dutch. It will become clear that each type is defined by its own characteristics, which include the possibility of degree modification, being lexicalized, the presence or absence of inflection on the adjective, stress patterns and the possibility to contain a comparative or superlative form of the adjective.⁴ We then argue that AN(N) compounds containing a comparative or superlative never belong to the type of lexicalized compounds. They are invariably instances of either the second type, i.e. the lexicalized phrases, or of the third type, i.e. the productive ANN compounds, depending on their lexicalized status.⁵ Finally, we will present examples which seem to suggest there is a yet a fourth type of AN(N) compounding. We will, argue, however, that looks may be deceiving and that this alleged fourth type fully patterns with the first type, i.e. the type of lexicalized compounds, of which it is a subtype. We conclude that Dutch has three types of AN(N) compounds.

⁴ There is one other property that differentiates between these three types of compounds, namely a restriction on the gender specification of the most deeply embedded noun. Type 3 compounds (see ib), in contrast to type 1 compounds (see ia), resist neuter gender on the left most noun for some speakers and in specific syntactic contexts:

- | | |
|--------------------------------------|---------------------------------------|
| (i) a. hoog-seizoen-tarief | b. *sterk-ijzer-verkoper |
| high-season _{neuter} -price | strong-iron _{neuter} -seller |
| 'price in the high season' | intended: seller of strong iron' |

The restriction on (i)b results from the fact that for type 3-compounds the adjectival inflection needs to be computed. However, Dutch neuter adjectival inflection is dependent on the definiteness of the DP. Since the left-hand part of the compound systematically lacks a D-layer (see footnote 16) the computation of the adjectival inflection is impossible. Hence, the ungrammaticality of type 3 compounds with a neuter left-hand noun. Since its precise properties of this restriction are quite complex and not crucial to the main point of this paper, we refer the reader to Anonymous (2014) for an in depth description of this restriction.

⁵ We will conclude that type 2 and 3 are structurally similar. For this reason one might argue that they are two subtypes of a single compounding type.

2.2. *Five distinguishing characteristics*

2.2.1. *Lexicalization.* As the name suggests, lexicalized compounds and lexicalized phrases consist of lexicalized material. In the introduction we have defined being lexicalized as being recognized by the linguistic community as a fixed combination. As a result, such combinations can often be found in dictionaries. This is indeed the case for the examples in 8) and 9), which can be found in *Woordenboek der Nederlandsche Taal* and *Van Dale*.

- (8) hoog-conjunctuur
high-economic climate
'boom'
- (9) rode-kool
red-cabbage
'red cabbage'

Productive ANN compounds belong to the domain of possible and not necessarily realized words. By definition, they are not listed or lexicalized. It should therefore not come as a surprise that (10), which was made up by the authors of this article, is not a lemma in any dictionary.

- (10) gezonde-groenten-verkoper
healthy-vegetables-seller
'seller of healthy vegetables'

Other neologisms that we have found via Google are given in (11).

- (11) a. oude-schoenen-actie⁶
old-shoe-action
'sales action involving old shoes'
- b. kleine-mensen-dating⁷
little-human.beings-dating
'dating for small people'

Whether a word is attested in a dictionary is a first indication of listedness, but it may be subject to happenstance. It is therefore noteworthy that two other independent properties correlate with being lexicalized. Firstly, we have pointed out in the introduction that parts of a lexicalized expression cannot be replaced by synonyms. This was illustrated for *hoogconjunctuur* 'boom'. The relevant example is repeated below.

- (12) *goed-/sterk-conjunctuur
good-/strong-economic.climate

⁶ <http://www.brantano.be/nl/oude-schoenenactie/hoe-de-bonnen-gebruiken> (May 15, 2014)

⁷ <http://www.kleinemensen-dating.nl/Dating/Dating.aspx> (May 15, 2014)

In lexicalized phrases substitution by a synonym is penalized by a loss of the lexicalized meaning. The compounds in (13), for example, do not refer to a red cabbage.

- (13) *bordeaux-* / *scharlaken-* / *purper-kool*
burgundy- / *scarlet-* / *purple-* cabbage
 ‘cabbage which happens to be burgundy / scarlet red / purple of color’

A similar substitution is harmless, though, for productive ANN compounds. Given that their meaning is not lexicalized, no lexicalized meaning can be lost. The compositional meaning is thus retained if a synonym of the adjective is used, as (14) illustrates.

- (14) *heilzame-groenten-verkoper*
 wholesome-vegetables-seller
 ‘seller of wholesome vegetables’

In sum, lexicalized combinations do not allow a substitution of its parts by a synonym, whereas non-lexicalized productive compounds do allow such a replacement.

A second property which correlates with being lexicalized is the possibility of a meaningful stacking of the adjective or its antonym. In lexicalized compounds and phrases such a stacking is interpretable. This can be seen in the examples below. The *a*-examples show that the same adjective can be stacked, the *b*-examples show a similar effect with the adjective’s antonym.

- (15) a. Peking heeft **hoge hoog-bouw**.
 Beijing has high high-rise
 ‘Beijing has high high-rise’.
 b. De Amsterdamse Zuidas heeft **lage hoog-bouw**.
 The Amsterdam South.axis has low high-rise
 ‘The Amsterdam South Axis has low high-rise’.
- (16) a. Een lage pH-waarde geeft **rode rode-kool**.
 a low pH-value yields red red-cabbage
 ‘A low pH-value yields red red cabbage’.
 b. Een hoge pH-waarde geeft **blauwe rode-kool**.
 a high pH-value yields blue red-cabbage
 ‘A high pH-value yields blue red cabbage’.

A comparable combination of adjectives leads to sheer nonsense in productive ANN compounds, which is marked by means of a hashmark.

- (17) a. #*gezonde-gezonde-groenten-verkoper*
 healthy-healthy-vegetables-seller
 b. #*ongezonde-gezonde-groenten-verkoper*
 unhealthy-healthy-vegetables-seller

To conclude, in this subsection we have emphasized on a lexical distinction between lexicalized compounds and lexicalized phrases on the one hand and productive ANN compounds on the other. The first two types are lexicalized, i.e. they are recognized by the speaker as a fixed combination. As a result, it is not possible to substitute their parts by synonyms. However, it is possible to stack the adjective or its antonym in a meaningful way. The third type differs in this respect. It does not contain fixed combinations of vocabulary items. Consequently, it tolerates the substitution of its parts by synonyms. In contrast, a stacking of the adjective with the same adjective or its antonym leads to jabberwocky.

2.2.2. *Degree modification.* In lexicalized compounds the adjective cannot be modified by a degree modifier. It is thereby irrelevant whether the adverb of degree is understood as embedded within the compound or as a modifier of the entire compound. This is illustrated in (18).

- (18) a. *[erg-hoog]-conjunctuur
 very-high-economic.climate
 b. *erg [hoog-conjunctuur]
 very high-economic.climate

Similarly, lexicalized phrases cannot contain a degree modifier either, as shown in (19).

- (19) *erg-rode-kool-recept
 very-red-cabbage-recipe

This restriction seems to be connected to the fact that the AN phrase contained within the compound is lexicalized. If one combines a degree modifier with the lexicalized phrase itself, the lexicalized meaning is lost and only a productive, *ad hoc* meaning can be assigned to the phrase.

- (20) een erg rode kool
 a very red cabbage
 ‘a cabbage which happens to be very red’

In contrast, productive ANN compounds containing a degree modifier are grammatical, as can be deduced from (21).

- (21) erg-gezonde-groenten-verkoper
 very-healthy-vegetables-seller
 ‘seller of very healthy vegetables’

In sum, lexicalized compounds and lexicalized phrases cannot contain an adverbial degree modifier, whereas productive ANN compounds do tolerate such a modifier.

2.2.3. *Inflection on the adjective.* In this section we will discuss whether the adjective which is contained in the AN(N)-compound bears adjectival inflection. It will become clear that this is not the case for lexicalized compounds, whereas adjectival inflection is attested in lexicalized phrases and productive ANN compounds.

Lexicalized compounds do not contain adjectival inflection. This becomes clear when we compare the compound in (22)a with the indefinite and definite DPs in (23). Both DPs show a schwa ending on the adjective which realizes inflection. Such a schwa is obligatorily absent in the compound, as the *b*-example in (22) illustrates.

- (22) a. hoog-conjunctuur
 high-economic.climate
 ‘boom’
 b. *hoog-e-conjunctuur
 high-INFL-economic.climate
- (23) a. een hoog-e conjunctuur
 a high-INFL economic.climate
 ‘a strong economic climate’
 b. de hoog-e conjunctuur
 the high-INFL economic.climate
 ‘the strong economic climate’

In this respect they differ from lexicalized phrases or productive ANN compounds which do contain inflection on the adjective. Let us first consider lexicalized phrases. As can be seen in (24), the adjective is marked with an inflectional ending, on a par with the adjective in the DPs in (25).

- (24) rood-e-kool
 red-INFL⁸-cabbage
 ‘red cabbage’
- (25) a. een rood-e kool
 a red-INFL cabbage
 ‘a cabbage which happens to be red’
 b. de rood-e kool
 the red-INFL cabbage
 ‘the cabbage which happens to be red’

⁸ De *-e-* is adjectival inflection. It is most definitely not a so-called linking element. First of all, linking elements have a different shape, they are either *-s-* or *-en-* (the /n/ in *-en-* is audible in certain dialects (Hanssen 2012)). Secondly, the adjectival inflection is sensitive to the gender of the left-hand N in these compounds (see footnote 4). Thirdly, it appears in regular syntactic phrases as well, as in (25)b. Needless to say, there is no reason why a linking element should occur in a syntactic phrase.

Adjectival inflection is attested in productive ANN compounds as well as can be deduced from a comparison between the compound in (26) and the DPs in (27).

- (26) gezond-e-groenten-verkoper
 healthy-INFL-vegetables-seller
 ‘seller of healthy vegetables’
- (27) a. gezond-e-groenten
 healthy-INFL-vegetables
 ‘healthy vegetables’
 b. de gezonde groenten
 the healthy-INFL vegetables
 ‘the healthy vegetables’

In sum, adjectival inflection differentiates between lexicalized compounds on the one hand and lexicalized phrases and productive ANN compounds on the other hand. While lexicalized compounds lack adjectival inflection, it is attested in the other two types.

2.2.4. *Stress*. DP stress differs from compound stress in Dutch. DPs bear stress on the noun, as in (28), compounds bear stress on the leftmost part, as in (29). Small caps indicate stress.

- (28) een slimme VROUW
 a smart woman
 ‘a smart woman’
- (29) een TONG-ZOEN
 a tongue-kiss
 ‘a French kiss’

The question is now whether ANN compounds bear DP stress or compound stress. Lexicalized compounds typically get compound stress. This is shown in (30).

- (30) a. HOOG-bouw(-architect)
 high-building(-architect)
 ‘high rise architect’
 b. ZOET-hout-verkoper
 sweet-wood(-seller)
 ‘(seller of) liquorice’
 c. VOL-bloed(-kwekerij)
 full-blood(-farm)
 ‘farm producing thorough-bred animals’
 d. BITTER-koekjes(-pudding)
 bitter-cookies(-pudding)
 ‘macaroons pudding’

In the examples above stress is assigned to the leftmost part, clearly indicating these compounds bear compound stress.⁹ Admittedly, though, some idiolectal variation is attested for a minority of these compounds (see Haeseryn et al. 1997: section 12.3.2.4 iii). For example, both (31)a and (31)b are attested.

- (31) a. KLEIN-geld(-portemonnee)
 small-money(-purse)
 ‘(purse for) coins’
 b. klein-GELD(-portemonnee)
 small-money(-purse)
 ‘(purse for) coins’

Stress patterns may thus vary marginally. Nevertheless, it is clear that lexicalized compounds most often take regular compounds stress.

Lexicalized phrases are assigned DP stress, as in the examples below. The left-hand AN phrase which is embedded in the compound is assigned stress as if it were an independent DP, compare (32) a and b. Some more examples are given in (33).

- (32) a. rode-KOOL(-recept)
 red-cabbage(-recipe)
 ‘(recipe for) red cabbage’
 b. de rode KOOL
 the red cabbage
 ‘the red cabbage’
- (33) a. blinde-VINK(-recept)
 blind-finch(-recipe)
 ‘(recipe for) beef olives’
 b. dikke-DARM(-ontsteking)
 thick-intestine(-inflammation)
 ‘(inflammation of the) large intestine’

Again, one may find some exceptional idiolectal variation in this domain. For example, (34)a and (34)b are both attested.

- (34) a. hoge-SCHOOL(-student)
 high-school(-student)
 ‘college (student)’
 b. HOGE-school(-student)
 high-school(-student)
 ‘college (student)’

⁹ Note that example (30)d contains a trochaic adjective. As such, it has the same syllable structure as a monosyllabic adjective with inflection. The fact that the stress in this example is still on the adjective indicates that the stress assignment is dependent on the structure of the compound, rather than on the syllable structure of the adjective.

In spite of such marginal counter-examples, it is still fair to state that the regular stress pattern for lexicalized phrases is DP stress.

DP stress is also attested in productive ANN compounds, as shown in the examples below.

- (35) a. gezonde-GROENTEN-verkoper
 healthy-vegetables-seller
 ‘seller of healthy vegetables’
 b. kale-KATTEN-adoptie
 hairless-cats-adoption
 ‘adoption of hairless cats’
 c. slimme-VROUWEN-vereniging
 smart-women-association
 ‘association for smart women’

To conclude, both compound stress and DP stress is attested amongst ANN compounds. Lexicalized compounds take compound stress, whereas lexicalized phrases and productive ANN compounds take DP stress.

2.2.5. *Comparatives and superlatives in ANN compounds.* ANN compounds in Dutch may contain the comparative or superlative form of an adjective. Examples are shown below.

- (36) a. hoger-huis-lid
 higher-house-member
 ‘member of the House of Lords’
 b. hogere-machts-vergelijking
 higher-power-equation
 ‘equation of higher degree’

The compounds containing a comparative or superlative may be lexicalized; they are recognized as fixed combinations and they lose their meaning if the adjective is replaced by means of a synonym, as shown in (37).

- (37) a. verheven-huis-lid
 elevated-house-member
 ‘member of an elevated house’
 b. verheven-machts-vergelijking
 elevated-power-equation
 ‘equation of an elevated degree’

However, non-lexicalized, newly formed examples are not excluded either. Examples (38)a and (38)b are neologisms.

- (38) a. veiligere-narcose-ontwikkeling
 safer-anesthesia-development
 ‘development of safer anesthesia’

- b. oudste-dochter-verantwoordelijkheid
 oldest-daughter-responsibility
 ‘responsibility of the oldest daughter’¹⁰

Whether the example is lexicalized or not, we argue that the comparative or superlative contains adjectival inflection. Compare the compounds in (36) with the DPs in (39) and (40). (39) shows indefinite DPs, (40) shows definite DPs.

- (39) a. een hoger- \emptyset huis_{NEUTER}
 a higher-INFL house
 ‘a higher house’
 b. een hoger-e vergelijking_{COMMON}
 a higher-INFL equation
 ‘a higher equation’
- (40) a. het_{NEUTER} hoger-e huis_{NEUTER}
 the higher-INFL house
 ‘the higher house’
 b. de_{COMMON} hoger-e vergelijking_{COMMON}
 the higher-INFL equation
 ‘the higher equation’

The adjectives in the compounds in (36) select a null inflectional marking if the noun they agree with is marked for neuter gender, see (36)a, they take a schwa ending otherwise, see (36)b. As such, they pattern with the inflection paradigm of indefinite DPs, which selects a null morpheme if the noun is neuter and singular and a schwa in all other cases. We take this to mean that the adjectives in (36) show adjectival inflection.

The fact that ANN compounds containing a comparative or superlative take adjectival inflection, indicates that they never belong to the first type, i.e. the lexicalized compounds. They either belong to the second type, i.e. the lexicalized phrases, or to the third type, i.e. the productive ANN compounds. We therefore propose that the lexicalized examples are instances of lexicalized phrases, whereas the neologisms are examples of productive ANN compounds.

This property of containing a comparative or superlative, relates to the ability to have degree modification (see section 2.2.2), since the comparative morpheme is a degree modifier (see Kennedy 1997). This is indeed what we find for productive ANN compounds. However, it

¹⁰ Note that the leftmost noun in these examples with type 3 compounds cannot be neuter singular because of an additional independent restriction on this type of compounds, see footnote 4. There is one exception on this restriction that becomes important here: if the adjective cannot show inflection due to its morphological shape, like *verheven* ‘elevated’ in (37)a, neuter singular nouns (like *huis* ‘house’ in this example) are allowed to occur.

seems to suggest that the lexicalized ANN compounds with a comparative or superlative are wrongly classified as lexicalized phrases as we have suggested that lexicalized phrases do not select degree modifiers (see section 2.2.2). Recall, though, that the two lexicalized types, i.e. the lexicalized compounds and the lexicalized phrases, cannot select degree modifiers as they lose their idiomatic meaning if they do. The relevant examples are repeated in (41) and (42).

- (41) a. *[erg-hoog]-conjunctuur
 very-high-economic.climate
 b. *erg [hoog-conjunctuur]
 very high-economic.climate
- (42) *erg-rode-kool-recept
 very-red-cabbage-recipe

One may interpret these examples in two ways. One may conclude that they show that lexicalized types cannot select a degree modifier, as we have done above. Alternatively, one may conclude that these examples show that the degree modifier should be part of the lexicalized information. If we follow the second line of reasoning the ANN compounds containing a comparative may still pattern with the lexicalized types although they contain a degree modifier, since the degree morpheme is simply part of the listed information. We then predict that the examples lose their idiomatic meaning in the absence of a degree modifier. This prediction is borne out, as is shown in (43).

- (43) a. hoog-huis-lid
 high-house-member
 ‘member of a high house’
 b. hoge-machts-vergelijking
 high-power-equation
 ‘equation of a high power’

We therefore modify the conclusion that lexicalized types cannot contain a degree modifier. More accurately stated, it is illicit to add or remove a degree modifier from a listed combination. The degree modifier thus suggests that these examples indeed may belong to the type of lexicalized phrases.

Finally, we predict that if these compounds are classified as productive ANN compounds or lexicalized phrases, they take DP stress.¹¹ Now observe that Dutch DPs containing a comparative or superlative assign stress to the comparative, as in (44). Small caps indicate stress.

¹¹ A reviewer points out that s/he gets exceptional stress assignment in the DP *de hogere MACHT* ‘the higher power’. However, s/he admits that the same stress pattern pertains to the compound. This reinforces the claim that the stress in the compound systematically mimics the stress in the DP.

(44) een SLIMMERE VROUW
 a smarter woman
 ‘a smarter woman’

(45) de SLIMSTE VROUW
 the smartest woman
 ‘the smartest woman’

Recall that compound stress is assigned to the leftmost member of the compound, as in (46).

(46) een TONG-ZOEN
 a tongue-kiss
 ‘a French kiss’

The leftmost member of an ANN compound containing a comparative or superlative is of course the comparative or superlative adjective itself. As a consequence, we expect stress to fall on the comparative or superlative both in the case of DP stress and in the case of compound stress, rendering the test inconclusive. The comparative or superlative will be assigned stress according to either stress pattern. Unsurprisingly, it is indeed the comparative or superlative adjective which is assigned stress.

(47) a. HOGER-huis-lid
 higher-house-member
 ‘member of the House of Lords’
 b. HOGERE-machts-vergelijking
 higher-power-equation
 ‘equation of higher degree’

Although the data thus fully behave as expected, the test is inconclusive for this type of ANN compounding. We conclude that the data are in any case compatible with the conclusion reached above, i.e. that ANN compounds containing a comparative or superlative are always examples of lexicalized phrases or productive ANN compounds and never of lexicalized compounds.

In short, in this section we have shown that ANN compounds containing a comparative or superlative pattern with lexicalized phrases and productive ANN compounds, depending on their status as being lexicalized or newly formed. They are never lexicalized compounds. The main indication leading to this conclusion is the fact that they take adjectival inflection. We have further pointed out that the degree modifier, i.e. the comparative or superlative morpheme, can be part of the lexicalized phrase. We have therefore modified the previous conclusion that lexicalized phrases cannot contain a degree modifier. What is rather at play is that one should not tinker with the

stored information on the presence or absence of degree modifiers if one wants to retain the lexicalized meaning. Finally, we have pointed out that a test based on stress patterns is inconclusive in these cases as compounds stress and DP stress both happen to assign stress to the comparative or superlative adjective. We have concluded that at least the stress pattern does not contradict the conclusion we have reached above that ANN compounds containing a comparative or superlative are instances of lexicalized phrases or productive ANN compounds.

2.2.7. *A fourth type?*. There is yet another set of AN(N) compounds we have not discussed so far. These compounds typically contain an adjective which is followed by a schwa, as in (48).

- | | |
|---|--|
| (48) a. wit-e-brood
white-E-bread
'white bread' | b. zoet-e-melk
sweet-E-milk
'plain milk' ¹² , |
| c. plat-e-land
flat-E-land
'countryside' | d. vast-e-land
fixed-E-land
'mainland' |
| e. blind-e-man
blind-E-man
'blindfolded player playing tag' | f. wild-e-bras
wild-E-brute
'tear-away' |
| g. mal-e-molen
crazy-E-mill
'carousel' | h. mal-e-praat
crazy-E-talk
'drivel' |
| i. dol-e-praat
mad-E-talk
'drivel' | j. hard-e-bol
tough-E-ball
stubborn person' |
| k. oud-e-jaar
old-E-year
'New Year's Eve' | l. wild-e-man
wild-E-man
'tear-away' |

In this section we will argue that these compounds are a subtype of the first type, i.e. of the lexicalized compounds. We will therefore refer to them as lexicalized compounds with an intervening schwa. We thus expect them to disallow degree modification, to be lexicalized, to lack adjectival inflection and to be assigned compound stress. These expectations are borne out.

First consider degree modification. Example (49) shows that this type of compounding indeed loses its specific meaning when a degree modifier is added.

¹² *Zoetemelk* is the antonym of buttermilk.

- (49) een erg wilde-man
 a very wild man
 'a very wild man'
 *'a terrible tear-away'

From the fact that most examples in (48) are clearly idiomatic one can deduce that they are lexicalized. After all, idiomaticity is a stronger notion than being lexicalized. If a compound is idiomatic this implies that the speech community attaches a non-compositional meaning to a fixed combination. It follows that the combination is indeed fixed, i.e. lexicalized.

We further predict that these compounds lack adjectival inflection. This is indeed the case, although they contain a schwa which at first sight could be mistaken for adjectival inflection. We have seen in section 2.2.6 that if the modified noun in a compound is a neuter noun, adjectival inflection is marked by means of a null morpheme, the schwa being restricted to common nouns. If the schwa truly were adjectival inflection, we expect it to be selected uniquely by compounds with a common noun. However, it co-occurs with neuter nouns as well, as can be deduced from the examples below. The examples in (50) show that the nouns *brood* 'bread' and *land* 'land' are indeed neuter. The examples in (51) show that the gender of these nouns does not affect the presence of the intervening schwa.

- (50) a. het_{NEUTER} brood_{NEUTER} b. het_{NEUTER} land_{NEUTER}
 the bread the land
 'the bread' 'the land'

- (51) a. wit-e-brood b. plat-e-land
 white-E-bread flat-E-land
 'white bread' 'country-side'

From the fact that the intervening schwa is not blocked by neuter nouns, we conclude it is not adjectival inflection. One may then wonder what the status of the schwa is. We conjecture it is there for phonological reasons. Considering the examples in (48) it is noticeable that the adjectives invariably end in a dental or a lateral consonant. Given the fact that one can attest such a phonological pattern, it is not unreasonable to assume the phonological context triggers the schwa, albeit for reasons we fail to understand. This hypothesis is further supported by the contrasting pair in (52).

- (52) a. oud-e-jaar b. nieuw-(*)e-jaar
 old-E-year new-year
 'New Year's Eve' 'New Year'

There is no obvious reason to expect a structural difference between (52)a and (52)b. Yet, (52)a contains a schwa, whereas (52)b does not. This patterns with a phonological distinction; (52)a ends in a dental, whereas (52)b does not. In short, we conclude that the intervening schwa is triggered phonologically. It is not a realization of adjectival inflection. Note that the insertion of the schwa must have been but an optional phonological rule as a form without an intervening schwa may exist as well. For example, (53) has been stored alongside (52)a.

- (53) a. oud-jaar
 old-year
 ‘New Year’s Eve’

Finally, we expect these examples to show compound stress. This expectation is indeed borne out, as is illustrated in (54).

- (54) a. WIT-e-brood b. ZOET-e-melk
 white-E-bread sweet-E-milk
 ‘white bread’ ‘plain milk’

We have seen in section 2.2.4 that some examples of lexicalized compounds may show a deviating stress pattern. Admittedly, this is also the case for the examples under discussion. Both (55)a and (55)b are attested.

- (55) a. OUD-e-jaar b. oud-e-JAAR
 old-E-year old-E-year
 ‘New Year’s Eve’ ‘New Year’s Eve’

In short, the stress pattern of these compounds is fully compatible with the hypothesis that they are a subtype of lexicalized compounds. To summarize, from the fact that these compounds show all the characteristics of lexicalized compounds, we propose they are a subtype thereof. The intervening schwa is triggered by the phonological context.

2.3. *Conclusion*

We have presented four tests to differentiate between three types of ANN compounds in Dutch. These tests involve distinctions in being lexicalized, in the possibility to host an adverbial degree modifier, in allowing adjectival inflection, in stress patterns and in allowing a comparative or a superlative. Finally, we have shown that lexicalized compounds may contain an intervening schwa which is triggered by the phonological make-up of the adjective. The results of this section are summarized in the table in 56).

(56)

	Lexicalized compounds with or without an intervening schwa	Lexicalized phrases ¹³	Productive ANN compounds
lexicalized	✓	✓	×
adding degree modification	×	×	✓
adjectival inflection	×	✓	✓
DP stress	×	✓	✓
comparative or superlative	×	✓	✓

Overview of ANN compounds in Dutch

A closer look at this table reveals that lexicalized compounds and lexical phrases pattern alike when it comes to lexical properties, such as being lexicalized, and that lexical phrases and productive ANN compounds are similar structurally. Lexical properties thus cross cut structural ones. In the next section we develop this observation in full detail.

3. Analysis: Root merger vs. NP merger

3.1. Introduction

In this section we argue that lexicalized compounds involve bare root merger, whereas the left-hand part of lexicalized compounds and productive ANN compounds is truly phrasal, i.e. it contains a partial NP. We first discuss lexicalized compounds and then we focus on productive ANN compounds. Lexicalized phrases are analyzed last.

3.2. Root merger of lexicalized compounds

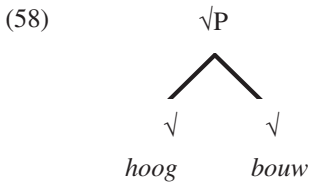
In this section we will present an analysis of lexicalized compounds, as in (57).

- (57) a. hoog-bouw(-architectuur)
 high-building(-architecture)
 ‘high rise (architecture)’
 b. zoet-hout(-verkoper)

¹³ The term ‘lexicalized phrases’ is short for ‘compounds with a lexicalized phrase as their left hand part’.

- sweet-wood-seller
 ‘(seller of) licorice’
 c. klein-kunst(-theater)
 small-art-theatre
 ‘cabaret (theatre)’

We adopt the view that the core of a lexical projection is a categoriless root (Halle and Marantz 1993, Harley and Noyer 1999, Borer 2005). We propose that lexicalized compounds involve the merger of bare roots, as in (58).^{14,15}



In the structure in (58) the root which we referred to as an adjective is not an adjective in the technical sense of the word. It is but a bare, a-categorial root.

The following empirical properties follow from this structure. It is expected that lexicalized compounds do not take adjectival inflection as there is no adjectival structure present in the tree. In the same vein, degree modifiers cannot merge as there is no AP to host them.

Note that the structure in (58) is derived in syntax and not in a separate morphological module. The reader may wonder how it follows that lexicalized compounds are invariably lexicalized. Although they are productive, they cannot be formed on the spot (Ackema & Neeleman 2004).

- (59) a. *fris-wind
 fresh-wind
 b. *blauw-oog
 blue-eye

Despite the productivity, the licitness of the newly formed compound depends on listedness. The speech community has to recognize the new compound as a (newly) listed combination. We will address this issue in what follows.

We adopt the view that bare roots are categorized by means of the functional projections which merge on top of it. For example, if number

¹⁴ The structure is simplified for ease of exposition. A fully developed derivation of compounds would take us too far afield. We would like to refer the reader to Borer (2009, to appear) for a detailed derivation of compounds in a root-based framework.

¹⁵ For a detailed discussion on the merger, projection and linearization properties of bare roots, see Anonymous (2011, 2014).

marking and a D-layer merge above a root, the root becomes nominal, if tense merges above a root, it will be verbal. Categorization is thus not done by categorial heads or lexical specifications (Borer 2005, 2013, De Belder 2011). As a consequence, adjectives are defined by designated functional projections as well, which we assume to be projections of degree (Corver 1990, 1997, Kennedy 1999). Technically, an adjective is thus not a particular lexical projection. It is rather defined as a relation between a predicate as expressed by a root and a degree established by means of functional projections. Roots thus depend on projections of degree to function as adjectives. To compute the meaning of an adjective in a compositional fashion, LF thus depends on degree projections as well. Now observe that bare roots as in (58) lack such functional projections. Hence, an adjectival meaning cannot be computed compositionally. The only possible meaning for the structure in (58) is therefore a stored one, which is not necessarily idiomatic (see section 1). As such, we derive the connection between being lexicalized and root merger.

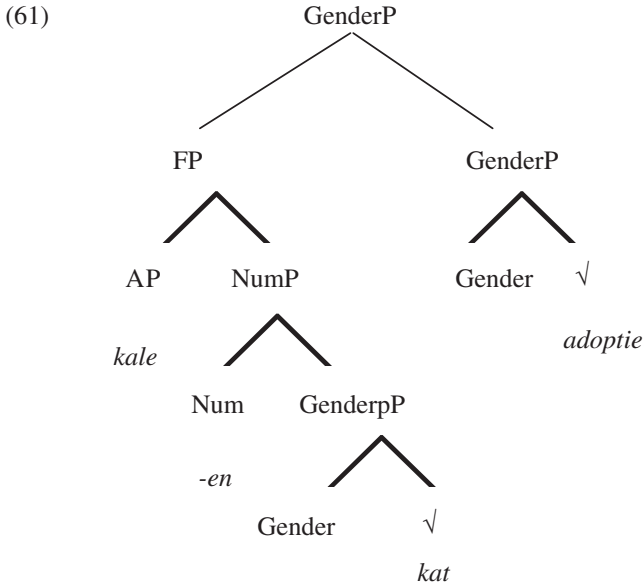
To summarize, we have analyzed lexical compounds as instances of root merger. We have shown that their empirical properties can be derived from this structure. For example, it is expected that they resist adjectival properties such as degree modification and adjectival inflection. Finally, being lexicalized results immediately from the defective structure.

3.3. NP merger of productive ANN compounds

We propose that the non-head of a productive ANN compound, as in (60), is a partial NP¹⁶, as in (61). Syntactically, it is thus a phrase.

- | | | | |
|---------|---|----|--|
| (60) a. | kale-katten-adoptie
hairless-cat-adoption
'adoption of hairless cats' | b. | gezonde-groenten-verkoper
healthy-vegetables-seller
'seller of healthy vegetables' |
|---------|---|----|--|

¹⁶ The non-head of a compound cannot be referential (Hoeksema 1988). This correlates with the fact that it can never include a D-layer (see Harley 2009, Borer 2009). One can find examples with a possessive pronoun, though, such as *Onzeliëvrouwekerk* (our-sweet-lady-church) 'Church of Our Lady', in which case the possessive pronoun is part of a proper name. The fact that it does not function as a proper possessive pronoun in these examples can be deduced from the fact that it is fixed, hence it cannot be replaced as in **jullielievevrouwekerk* (your-sweet-lady-church).



The presence of an AP-layer in (61) captures the fact that productive ANN compounds may contain adjectival features. We have pointed out that these compounds allow degree modifiers and comparative and superlative morphemes and that they contain adjectival inflection. These properties follow immediately from the structure. After all, it is expected that an AP phrase can contain material which is typically associated with such a phrase. Furthermore, we see no reason why this structure should not be productive; NPs can be built as you like. Finally, note that one predicts that the adjective can be coordinated with another one or that several adjectives can be stacked. This is borne out. (62) shows an example of coordinated adjectives, (63) illustrates stacking.

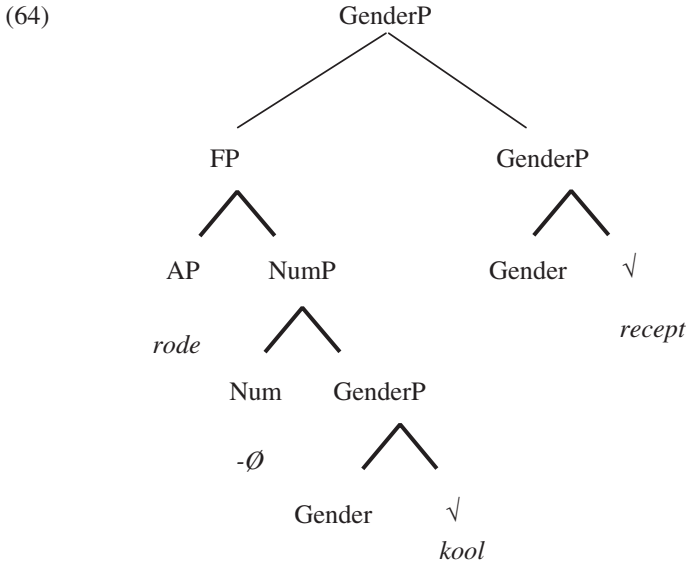
(62) kale en zieke-katten-adoptie
 hairless and ill-cats-adoption
 ‘adoption of hairless and ill cats’

(63) kale-zieke-katten-adoptie
 hairless-ill-cats-adoption
 ‘adoption of hairless, ill cats’

In sum, in order to capture the fact that the adjective in productive ANN compounds shows the syntactic behavior of a full-blown adjective, we propose to analyze the left-hand AN phrase of the compound as a partial NP with a complete AP layer.

3.4. NP merger of lexicalized phrases within compounds

Lexicalized phrases which are embedded in a compound share structural properties with productive ANN compounds. Both types contain adjectival inflection and both may contain a comparative or superlative form of the adjective. We therefore propose to analyze lexicalized phrases on a par with productive ANN compounds. In other words, lexicalized phrases within compounds are partial NPs as well, as in (64).¹⁷



However, we have discussed a distinction between productive ANN compounds and lexicalized phrases. Whereas one can add a degree modifier to productive ANN compounds, this option is excluded for lexicalized phrases. Yet, we have argued that this difference does not stem from the fact that lexicalized phrases resist a degree modifier. After all, they may contain a comparative or superlative morpheme. What is relevant, though, is the fact that lexicalized phrases can only contain degree modification if it is part of the stored information. This distinction between productive ANN compounds and lexicalized phrases is thus not a structural distinction. It rather stems from the lexical property of being lexicalized.

¹⁷ We propose a number phrase as the left-hand phrase can be pluralized, as in *rodekolenveld* ‘red cabbage field’. We propose a gender phrase as the adjectival inflection is clearly sensitive to gender, as can be concluded from the zero adjectival marker which is triggered by the neuter diminutive affix in *het rood-∅ kooltje* ‘the small red cabbage’.

A similar effect can be observed when considering the coordination of adjectives in lexicalized phrases. They do allow coordination with other adjectives, as expected. This is shown in (65).

- (65) a. nieuw-bouw
 new-build
 ‘new build’
 b. hoog-bouw
 high-build
 ‘high rise’
 c. nieuw- en hoog-bouw¹⁸
 new- and high build
 ‘new high rise’

As lexicalized phrases contain an AP-layer they thus can be coordinated with other adjectives. Yet, they cannot be coordinated with just any adjective, as is illustrated in (66).

- (66) a. mooie bouw
 nice build
 ‘nice build’
 b. hoog-bouw
 high-build
 ‘high rise’
 c. *mooie- en hoog-bouw
 nice- and high-build

We propose that the illicitness of (66)c is not due to a structural restriction, it rather goes back to a lexical restriction. Note that the DP in (66)a is fully compositional, it is not lexicalized. Now observe that although listed items can be coordinated, this is not necessarily the case for listed and non-listed items. (67) shows examples of listed imprecations.

- (67) a. Krijg de tyfus.
 get the typhoid
 (imprecation)
 b. Krijg de tering
 get the tuberculosis
 (imprecation)

¹⁸ It is easy to find examples on Google in which the compound *nieuw- en hoogbouw* unambiguously refers to the same building, e.g. *De nieuw- en hoogbouw aan de Laan op Zuid vordert met de dag. Het zal niet lang meer duren of de Vancouver Building is klaar.* (<http://renehoeflaak.com/2009/12/>) ‘The new high rise at the South Avenue progresses daily. It won’t take long till the Vancouver Building is completed.’

Although the imprecation may contain various names of diseases, not all diseases can be part of the idiom. (68), for example, is not a listed imprecation.

- (68) Krijg de griep.
 get the flu
 'Get the flu.'¹⁹
 *imprecation

One can licitly coordinate the names of the diseases as long as they are both listed as imprecations, as can be seen in (69). However, coordinating listed and non-listed items is ungrammatical, as is shown in (70).

- (69) Krijg de tyfus en de tering.
 get the typhoid and the tuberculosis
 (imprecation)

- (70) *Krijg de tyfus en de griep.²⁰
 get the typhoid and the flu

We propose to ascribe the ungrammaticality of (66)c to this phenomenon. One cannot coordinate listed and non-listed items, even though this should be possible structurally.

In sum, we propose that differences between productive ANN compounds and lexicalized phrases can be derived from the fact that productive ANN compounds are interpreted compositionally and the second type is stored, even though they are built by means of the same structure. Both types contain an AP-layer.

3.5. Conclusion

In this section we have proposed that the non-head of lexicalized compounds contains nothing but bare roots. As such, we can derive the fact that they disallow adjectival features, such as degree modifiers, comparatives and superlatives and inflection. The fact that lexicalized compounds are obligatorily listed follows from the absence of a functional structure. As LF depends on functional structure to interpret the predicate expressed by a root compositionally, the conceptual module necessarily depends on readily available stored information.

We proposed that the left-hand part of productive ANN compounds and lexicalized phrases is a partial NP containing an AP-layer. As such, it follows immediately that these types may contain adjectival features, such as inflection and degree modification and that they are assigned DP stress. We have argued that restrictions on lexicalized phrases follows

¹⁹ This example is pragmatically odd as it is unlikely one would order someone to catch a disease. An interpretation as an imprecation is excluded.

²⁰ The example is ungrammatical as an imprecation.

from the lexical property of being listed, rather than from structural considerations.

More generally, we have observed that being lexicalized is not associated with one particular structure. Being lexicalized is a property which cross cuts structural properties. It therefore does not make sense to postulate a separate module in which lexicalized compounds are derived (pace Ackema and Neeleman 2004 on ANN compounding). We have argued that all compounds are built in syntax, yet the level of merge may differ. Some compounds contain roots, whereas others contain phrases.

4. A previous account of type 1 ANN compounds

The data we have called ANN compounds of type 1 have been discussed before by Ackema and Neeleman (2004). They use these data to substantiate the claim that a morphological submodule blocks a syntactic derivation for listed items. As such, their proposal contrasts with our view according to which all ANN-compounds are derived in a single module, viz. syntax, and according to which there is no inherent relation between specific structures and listedness. As both the data and the claim are relevant for the present paper we will discuss their proposal in detail and we will argue in favor of the present proposal.

4.1. *Ackema and Neeleman's (2004) proposal*

Ackema and Neeleman (2004) propose that syntax and morphology are two separate submodules of narrow syntax. They further submit that a syntactic derivation blocks the morphological derivation of syntactic objects unless the meaning of the morphological structure is not identical to the syntactic one, i.e. when the morphological structure is listed:

- (71) 'Let a_1 and a_2 be syntactic representations headed by a . a_1 blocks a_2 iff
- (i) in a_1 (a projection of) a is merged with (a projection of) b in syntax, while in a_2 a projection of a is merged with (a projection of) b in morphology', and
 - (ii) the semantic relation between a and b is identical in a_1 and a_2 .' (A&N 2004:51)

The examples in (72) illustrate their claim. They show ANN compounds of type 1 with a listed meaning.

- (72) a. zoet-hout b. speciaal-zaak c. zwart-boek d. bruin-vis
 sweet-wood special-shop black-book brown-fish
 'licorice' 'specialist shop' 'black book' 'porpoise'

Ackema and Neeleman (2004:62) point out that these examples do not have the same meaning as the corresponding syntactic phrases. The

phrases in (73) contain the same nouns and adjectives as in (72). The AP occurs preminally.

- (73) a. het zoete hout b. de speciale zaak c. het zwarte boek
 the sweet wood the special shop the black book
 ‘the sweet wood’ ‘the special shop’ ‘the black book’
 d. de bruine vis
 the brown fish
 ‘the brown fish’

They conclude that listing blocks the syntactic derivation of these compounds. They further argue that listing requires non-compositional semantics (A&N 2004:83). They claim that, as a consequence, AN-compounds with a transparent meaning do not occur independently (see (74)a). They are blocked by their syntactic counterparts (see (74)b).

- (74) a. *Zij heeft mooie blauw-oog-en. (A&N 2004:63, ex.26)
 She has beautiful blue-eye-s
 b. Zij heeft mooie blauwe ogen. (A&N 2004:63, ex.26)
 She has beautiful blue eyes
 ‘She has beautiful blue eyes.’

Ackema and Neeleman (*ibidem*) note that there is an exception to the rule. When the structure will be embedded in a morphological structure, it will be derived by morphology, even if its meaning is transparent. For example, the affix *-ig* selects a morphological object. Due to this selectional requirement, the morphological structure *blauwoog* ‘blue-eye’ in (75) is not blocked by syntax.

- (75) Zij is blauw-oog-ig. (A&N 2004:63, ex.25)
 She is blue-eye-y
 ‘She is blue-eyed.’

Similarly, it is possible to embed a transparent AN compound in another compound, as in (76) (the examples are taken from A&N 2004:83–84, ex.62). Ackema and Neeleman (2004:83) propose that in this case the morphological derivation of the AN structure is licensed because the complete compound in which it is contained is listed.

- (76) kort-hoorn-koe lang-poot-mug
 short-horn-cow long-leg-mosquito
 ‘breed of cow with short horns’ ‘daddy longlegs’
 lang-gat-boormachine
 long-hole-drill
 ‘drill for long holes’

In sum, Ackema and Neeleman propose that syntax and morphology are two separate submodules of narrow syntax. They argue that syntactic

merger blocks morphological merger. In other words, DP-formation blocks AN-compounds. However, they observe three exceptions. A compound may be derived when it merges with an affix that requires a morphological object or when it is the left hand part of another compound. Finally, a compound may be derived when it has a different meaning than the corresponding DP.

4.2. *Problems with the proposal*

In this section we discuss some problems for Ackema's and Neeleman's (2004) claim that DPs block AN compounds with three exceptions. We discuss each exception in turn below.

Firstly, Ackema and Neeleman (2004) postulate that syntax blocks morphology except when the [AN] structure merges with an affix that requires a morphological object. This is a theory-internal argument. The statement that affixes (such as *-ig*) select for a morphological object is an assumption which depends on the view that syntax and morphology are separate (sub)modules. If one assumes but one module (i.e. syntax) it simply no longer follows. As such, this observation does not force us to assume two separate modules.

Secondly, they propose that syntax blocks morphology except when the [AN] structure is the left hand part of another compound, as in (77) (A&N 2004:83–84, ex.62).

- (77) a. kort-hoorn-koe b. lang-poot-mug c. lang-gat-boormachine
 short-horn-cow long-leg-mosquito long-hole-drill
 'short horn' 'daddy longlegs' 'drill for long holes'

Ackema and Neeleman (2004) explicitly state that the listedness of the compound as a whole licenses the morphological derivation of the transparent left-hand part. There are two problems with this particular proposal. The first problem is the fact that the right hand part of these compound may vary, as is illustrated in (78)–(80). The left-hand part is identical in the *a*, *b*, and *c* examples, but the right-hand part differs.

- (78) a. kort-hoorn-rund b. kort-hoorn-vee
 short-horn-bovine short-horn-cattle
 'short horn bovine' 'short horn cattle'
- c. kort-hoorn-veeras
 short-horn-cattle.type
 'short horn cattle type'
- (79) a. lang-gat-bit b. lang-gat-frees
 long-hole-bit long-hole-milling.cutter
 'bit for long holes' 'milling cutter for long holes'

- (80) a. vol-bloed-fokkerij
full-blood-breeding.farm
'breeding farm for thoroughbred animals'
- b. vol-bloed-paard
full-blood-horse
'thoroughbred horse'
- c. vol-bloed-stier
full-blood-bull
'thoroughbred bull'

One can even use these left hand part ANs to form new compounds productively, as shown in (81).

- (81) a. vol-bloed-veulen
full-blood-foal
'thoroughbred foal'
- b. vol-bloed-merrie
full-blood-mare
'thoroughbred mare'
- c. vol-bloed-hengst
full-blood-stallion
'thoroughbred stallion'
- d. vol-bloed-ruin
full-blood-gelding
'thoroughbred gelding'
- e. vol-bloed-ezel
full-blood-donkey
'thoroughbred donkey (ironic)'

The claim that the complete compound is listed is therefore false.

The second problem is the fact that the so-called left hand part does not need to be embedded at all. It is easy to find exocentric alternations on Google, as in (82) and (84). The examples in (84) are the exocentric versions of the compounds in (83).

- (82) a. kort-hoorn
short-horn
'short horn'
- b. lang-poot
long-leg
'daddy longlegs'
- c. lang-gat
long-hole
'drill for long holes'
- (83) a. vol-bloed-paard
full-blood-horse
'thoroughbred horse'
- b. lang-oor-konijn
long-ear-rabbit
'long-eared rabbit'
- c. breed-beeld-televisie
wide-screen-television
'wide screen TV'
- (84) a. vol-bloed
full-blood
'thoroughbred horse'
- b. lang-oor
long-ear
'long-eared rabbit'
- c. breed-beeld
wide-screen
'wide screen TV'

One could of course argue that the exocentric compounds are elliptical version of the endocentric ones. However, they select a different determiner, as can be seen in (85).

- (85) a. **het** vol-bloed_{NEUTER}-paard_{NEUTER}
the full-blood-horse
'the thoroughbred horse'
- b. **het** lang-oor_{NEUTER}-konijn_{NEUTER}
the long-ear-rabbit
'the long-eared rabbit'

- c. **de**_{COMMON} breed-beeld_{NEUTER}-televisie_{COMMON}
 the wide-screen-television
 ‘the wide screen TV’
- (86) a. **de**_{COMMON} vol-bloed_{NEUTER} b. **de**_{COMMON} lang-oor_{NEUTER}
 the full-blood the-long-ear
 ‘the thoroughbred horse’ ‘the long-eared rabbit’
- c. **het**_{NEUTER} breed-beeld_{NEUTER}
 the wide-screen
 ‘the wide screen TV’

The gender of the determiner in the tripartite compounds in (85) is determined by the gender of the compound’s head. The determiner simply agrees with the compound’s rightmost part. In the bipartite compounds the issue is slightly more complicated. The determiner of a compound referring to an inanimate concept will be determined by the head of the compound as well. The compound referring to animate concepts, in contrast, shows agreement *ad sensum*. The determiner takes common gender as this gender is associated with animacy.

Technically, it is not clear where the gender assigned *ad sensum* comes from. One might of course argue that agreement *ad sensum* is derived through a null affix. Ackema & Neeleman (ibidem) could argue that this null affix is an affix that requires a morphological object to merge with. However, if one does so, one arrives, at the same theory-internal argument as presented above. Affixes may only require morphological objects under the assumption that morphological objects exist. Under the proposal that there is but one generating module, viz. syntax, they will simply merge with a syntactic structure.

Thirdly, Ackema and Neeleman argue that syntax blocks morphology except when the [AN] structure is not transparent. Meaning is a theory-independent criterion. Yet, empirically the argument seems to be flawed. Even though [AN] compounds are always listed, their meaning may be transparent (see section 1).

- (87) a. diep-zee b. zoet-stof c. laag-land d. hard-glas
 deep-sea sweet-matter low-land hard-glass
 ‘deep sea’ ‘sweetener’ ‘lowland’ ‘hard glass’

They are further not necessarily blocked by a corresponding DP, as shown in (88) and (89).

- (88) a. hoog-conjunctuur b. een hoge conjunctuur
 high-economic.climate a high economic.climate
 ‘boom’ ‘a boom’

- (89) a. groot-vee b. het grote vee
 large-cattle the large cattle
 ‘cattle’ ‘cattle’

In contrast, DPs may be idiomatic, as in (90).

- (90) a. een olijke Frans b. een bittere pil
 a jolly Frans a bitter pill
 ‘a jolly chap’ ‘a painful experience’
 c. een harde tante d. een lange arm
 a tough aunt a long arm
 ‘a tough cookie’ ‘a network connection’

Idiomaticity is thus not tied to compounds or DPs specifically. Whether a listed combination of an A and an N will be realized as a DP or as a compound is rather part of the listed information. This conclusion corresponds with what we have observed for type 2 and type 3 compounds in the present article. We have shown that even though they differ in listedness, they are identical from a structural point of view.

4.3. *Theoretical consequences*

In the previous section we have seen that Ackema & Neeleman’s theory-independent criterion to make sure morphological merger can obtain, i.e. idiomaticity, is empirically flawed. If idiomaticity is not the criterion that regulates blocking between the modules, then how could these modules be ordered?

It is clear that free choice is too strong, as can be deduced from (91).

- (91) a. *fris-wind b. #het zoete hout
 fresh-wind the sweet wood

One might propose yet another principle. However, we failed to find a single non-structural property that is unique to either compounds or DPs. As an alternative, we propose that syntax always wins. In other words, there is just one module. If a listed combination is expressed as a compound or a DP is then simply part of the listed information.

5. Conclusion

In this article we have distinguished between three types of ANN compounds in Dutch, which we referred to as lexicalized compounds, lexicalized phrases and productive ANN compounds. We have shown that the structural properties of these types, which we derived from the level of merge, cross cut the lexical property of being lexicalized. Given that structural properties do not show a one-to-one mapping with lexical properties, it is undesirable to postulate an association between listedness

and structure. Furthermore, we proposed that all AN(N) compounds are merged in syntax.

More specifically, we have shown that lexicalized compounds are fixed, listed combinations which do not allow any adjectival material, such as degree modification or adjectival inflection. They do not take DP stress either. We have argued that these properties result from the fact that they do not contain an adjective in a technical sense. What is recognized as an adjective is structurally but a bare, categoriless root. We have further derived the property of being lexicalized from this structure. Given that the root lacks adjectival functional projections, it cannot be interpreted as an adjective and LF fails to compute a compositional meaning. The structure depends on the availability of a stored denotation.

We have analyzed both compounds including lexicalized phrases and productive ANN compounds as compounds of which the non-head is a partial NP hosting an AP-layer. This structure captures the fact that the adjective in these compounds contain adjectival properties, such as inflection or degree modification and that the AN phrase receives DP stress. We have emphasized on the fact that restrictions on lexicalized phrases do not stem from structural distinctions, but from the mere fact that they are lexicalized. In sum, we have argued that conclusions on structure building in the domain of word-formation should not be based on lexical properties, such as being lexicalized.

References

- ACKEMA, P. & A. NEELEMAN (2004) *Beyond Morphology*. Oxford: OUP.
- ANONYMOUS (in preparation) *The glass ceiling effect of workspaces*. ANN compounding in Dutch.
- BOOI, G. (2002) *The morphology of Dutch*. Oxford: OUP.
- BORER, H. (2005) *In name only. Structuring Sense, Volume I*. Oxford: OUP.
- BORER, H. (2009) Compounds: the view from Hebrew. In Lieber, R. & P. Štekauer (eds.) *The Oxford handbook of compounding*. Oxford: Oxford University Press.
- BORER, H. (2013) *Taking Form. Structuring Sense, Volume III*. Oxford: OUP.
- CHOMSKY, N. (1970) Remarks on Nominalization. In Jacobs, R. and P. Rosenbaum (eds.) *Readings in English Transformational Grammar*. Waltham, MA: Ginn.
- CORVER, N. (1990) *The syntax of left branch constructions*. Doctoral dissertation, Tilburg University.
- CORVER, N. (1997) The internal syntax of the Dutch extended adjectival projection. *NLLT* 15:289–368.
- DE BELDER, M. (2013) The root and nothing but the root: primary compounds in Dutch. Ms., HUBrussel.
- DI SCIULLO, A. M. & E. WILLIAMS (1987) *On the definition of word*. Cambridge, Mass.: MIT Press.
- HANSSEN, E. (2012) Linking elements in compounds: Regional variation in speech production and perception. Doctoral dissertation, Radboud University Nijmegen.

- HARLEY, H. (2009) Compounding in DM. In Lieber, R. & P. Štekauer (eds.) *The Oxford handbook of compounding*. Oxford: Oxford University Press.
- HOEKSEMA, J. (1988) Head-types in morpho-syntax. Yearbook of Morphology 1988, ed. by G. Booij and J.v. Marle, 123–38. Dordrecht: Foris Publications.
- KENNEDY, C. (1999) *Projecting the adjective*. NY: Garland Press.
- LAPOINTE, S. G. (1980) A Theory of Grammatical Agreement. Ph.D. diss., University of Massachusetts, Amherst.
- MITHUN, M. (1984) The evolution of noun incorporation. *Language* 60:847–94.

Received June 13, 2013

Accepted June 27, 2014

Marijke De Belder
Hogeschool-Universiteit Brussel
Warmoesberg 26, room B 04-12, 1000
Brussel
marijke.debelder@hubrussel.be

Marjo van Koppen
Universiteit Utrecht
Departement Nederlandse Taal en Cultuur
UiL-OTS
Trans 10, 3512 JK, Utrecht
J.M.vanKoppen@uu.nl